

REMARKS

Claims 1-18, 22-24, 27-50 and 53-58 are now pending in this application, claims 19-21, 51 and 52 having been cancelled, claims 1, 9, 22 and 23 having been amended, and claims 53-58 having been added by this Amendment. The Office Action dated October 11, 2001 rejected claims 1-24 and 27-52 as being anticipated by U.S. Patent No. 5,913,174 to Casarez et al and by U.S. Patent No. 5,363,114 to Shoemaker.

Original IDS

An Information Disclosure Statement (IDS) was filed simultaneously with this application on October 10, 2000. However, the Office Action did not consider or mention the original IDS. Applicants respectfully request that the original IDS be considered and such consideration be indicated by attaching an initialed copy of the Form PTO-1449 to the next Office Action or Notice of Allowance.

Claims 1-5, 8, 9, 16, 27, and 47-50

This Amendment amends independent claim 1 to state that the antenna assembly is for a handheld telecommunication apparatus and that the flexible member is arranged to protrude from a surface of the handheld telecommunication apparatus. It also amends claim 9 to be consistent with amended claim 1. The changes made to claims 1 and 9 are shown in the attached page entitled "Marked-Up Version Showing Changes Made". Applicants respectfully submit that amended claim 1 (and claims 2-5, 8, 9,

16, 27 and 47-50 dependent on claim 1) are allowable over the applied references for at least the following reasons.

As explained in the specification, there is a problem that the effectiveness of antennas for handheld telecommunication devices can be reduced by being concealed by the user's hand (see page 2, lines 10-17). This application addresses the problem without utilizing traditional antennas which take the form of extendible whip or rod antennas or permanently protruding helical antennas. (see page 1, lines 17-26, and page 2, lines 19-22).

The anticipation rejection in the Office Action relied upon the planar antenna embodiment 57 shown in Figs. 12-14 and 31 and described at, for example, col. 6, lines 43-52, of U.S. Patent No. 5,193,174 to Casarez et al (this embodiment hereinafter being referred to simply as "Casarez"). Applicants respectfully submit that the amendment to claim 1 distinguishes over Casarez and that claim 1, as amended, is not anticipated by Casarez. Casarez is a removable PCMCIA card radio for a laptop computer having a flexible planar antenna. Although the PCMCIA card radio of Casarez can be utilized to convert a laptop computer to a telecommunication apparatus, the laptop computer nevertheless is not a handheld telecommunication apparatus as recited in amended claim 1. Incidentally, a laptop computer, even with the PCMCIA radio card of Casarez, is also not analogous to a handheld telecommunication apparatus because a laptop computer does not suffer the same disadvantages as handheld telecommunication apparatuses (see, for example, page 2, lines 10-17, of the specification).

Furthermore, the planar antenna of Casarez protrudes from the end of the PCMCIA card (see, for example, Fig. 1 of the patent). Even if amended claim 1 did not recite that the telecommunication apparatus was handheld, Casarez still would not anticipate amended claim 1 for the further reason that the planar antenna does not protrude from the laptop computer.

The anticipation rejection in the Office Action also relied upon several embodiments described in U.S. Patent No. 5,363,114 to Shoemaker (these embodiments hereinafter being referred to simply as "Shoemaker"). Since Shoemaker does not involve the antenna assembly on a handheld telecommunication apparatus, the amendment to Claim 1 also distinguishes over Shoemaker and claim 1, as amended, is not anticipated by Shoemaker. Furthermore, in Shoemaker, the antenna conforms to the shape of the surface on which it is mounted (col. 2, lines 40-50). Thus, amended claim 1 is also not anticipated by Shoemaker for the further reason that the flexible member of the antenna assembly does not protrude from a surface of the handheld telecommunication apparatus.

Applicants respectfully submit that amended claim 1 is allowable over the applied references at least for the above reasons. Claims 2-5, 8, 9, 16, 27 and 47-50 are allowable at because they are dependent on claim 1.

Claim 7

Applicants respectfully submit that dependent claim 7 is allowable over the applied references irrespective of the

amendments to claim 1. Claim 7 recites that the conductive element in the antenna assembly is disposed "between the substrate and a second substrate material." The grounds of rejection in part 5 on pages 2-4 of the Office Action does not mention or address this feature. Casarez has a single substrate 59 (see Fig. 13) and conductive element 63 is disposed on the bottom of substrate 59 (see Fig. 12). Shoemaker has conductive element R disposed on a single carrier layer C (see Fig. 3).

Claims 10 and 28-30

Applicants respectfully submit that dependent claims 10 and 28-30 are allowable over the applied references irrespective of the amendments to claim 1. Claims 10 and 28-30 recite that the conductive element "is a pre-formed wire." Conductive element 63 in Casarez is a laminated copper conductor (see col. 6, lines 50-52). The grounds of rejection refers to Figs. 8 and 9 in Shoemaker. However, Figs. 8 and 9 show a "radiator similar to that of Fig. 2..." (See col. 5, lines 6-44). Applicants can find no indication that the radiator is a pre-formed wire.

Claims 11 and 31-33

Applicants respectfully submit that dependent claims 11 and 31-33 are allowable over the applied references irrespective of the amendments to claim 1. Claims 11 and 31-33 recite that the conductive element "is a stamped out pattern from a planar sheet." Conductive element 63 in Casarez is a laminated copper conductor (see col. 6, lines 50-52). Applicants can find no

indication that the radiator in Shoemaker is a stamped out pattern from a planar sheet.

Claims 12 and 34

Applicants respectfully submit that dependent claims 12 and 34 are allowable over the applied references irrespective of the amendments to claim 1. Claims 12 and 34 recite that the conductive element "is stainless steel or spring steel." Conductive element 63 in Casarez is a laminated copper conductor (see col. 6, lines 50-52). Applicants can find no indication that the radiator in Shoemaker is stainless steel or spring steel.

Claims 13 and 35-38

Applicants respectfully submit that dependent claims 13 and 35-38 are allowable over the applied references irrespective of the amendments to claim 1. Claims 13 and 35-38 recite that the conductive element is disposed on the substrate "by a process of etching." Conductive element 63 in Casarez is laminated (see col. 6, lines 50-52). The grounds of rejection refers to col. 4, lines 1-10, of Shoemaker. This portion reads as follows:

" . . . One procedure known as a photolithographic process may be used which involves having a conductive sheet bonded to a carrier layer and remove the conductive sheet from the carrier layer except for the radiator and ground conductors. Another process would involve vacuum deposition of the conductive metal onto

the carrier layer. In both instances the conductive sheet is bonded to or becomes an integral part of the carrier layer and flexes with the carrier layer. . ."

This section mentions a photolithographic process and vacuum deposition, but there is no description of an etching process. Applicants respectfully submit that the conductive element in Casarez and Shoemaker are not disposed by a process of etching.

Claims 14 and 39-42

Applicants respectfully submit that dependent claims 14 and 39-42 are allowable over the applied references irrespective of the amendments to claim 1. Claims 14 and 39-42 recite that the conductive element is disposed on the substrate "by a process of printing using conductive ink." Conductive element 63 in Casarez is laminated (see col. 6, lines 50-52). The grounds of rejection refers to col. 4, lines 1-10, of Shoemaker. This portion reads as follows:

". . . One procedure known as a photolithographic process may be used which involves having a conductive sheet bonded to a carrier layer and remove the conductive sheet from the carrier layer except for the radiator and ground conductors. Another process would involve vacuum deposition of the conductive metal onto the carrier layer. In both instances the conductive sheet is bonded to or becomes an integral part of the carrier layer and flexes with the carrier layer. . ."

This section mentions a photolithographic process in which

a conductive sheet is bonded and the removed and vacuum deposition of a conductive metal, but there is no description of a process of printing using conductive ink. Applicants respectfully submit that the conductive element in Casarez and Shoemaker are not disposed by a process of printing using conductive ink.

Claims 15 and 43-46

Applicants respectfully submit that dependent claims 15 and 43-46 are allowable over the applied references irrespective of the amendments to claim 1. Claims 15 and 43-46 recite that the substrate is polyester. Substrate 59 in Casarez is copper clad polyimide (see col. 6, lines 48-50). Applicants can find no indication that the substrate in Shoemaker is polyester.

Claim 17

Applicants respectfully submit that dependent claim 17 is allowable over the applied references irrespective of the amendments to claim 1. Claim 17 recites that the flexible member is a thermo plastic elastomer. Applicants can find no indication that the flexible member in Casarez or Shoemaker is a thermo plastic elastomer.

Claim 18

Applicants respectfully submit that dependent claim 18 is allowable over the applied references irrespective of the amendments to claims 1 and 9. Claim 18 recites that the rigid base portion is 10-15% glass filled polypropylene. Applicants

can find no indication that the rigid base portion in Casarez or Shoemaker is 10-15% glass filled polypropylene.

Claims 22-24

Claims 22 and 23 have been amended merely to be in independent form in view of the cancellation of claims 20 and 21 (and dependent claims 51 and 52). The scope of claims 22-24 has not been changed by this Amendment. The changes made to the claims 22 and 23 by this Amendment are shown in the attached page entitled "Marked-Up Version to Show Changes Made." Applicants respectfully traverse the anticipation rejection of claims 22-24 for at least the following reasons.

Claims 22-24 recite a method of producing an antenna assembly. The grounds of rejection in part 5 on pages 2-4 of the Office Action states that the antenna assembly in Casarez and Shoemaker "would perform the claimed method." However, as noted, the recited method is that of producing an antenna assembly and is not a method performed by the antenna assembly.

The grounds of rejection provides no other comments regarding the anticipation rejection of claims 22-24. Applicants cannot find any indication that flexible outer housing 33 in Casarez is produced by an injection moulding process. Although the antenna element R in Shoemaker may be disposed on a carrier layer C, applicant find no indication that it is encapsulated or that encapsulation is achieved by means of an injection moulding process. Applicants respectfully traverse the anticipation rejection of claims 22-24 at least for these reasons.

Claims 53-56

Each one of newly added claims 53-56 are dependent on claim 24 and recites an additional feature of the overmoulding process recited in claim 24. Applicants respectfully submit that each one of claims 53-56 is allowable over the cited reference because of the additional feature recited therein.

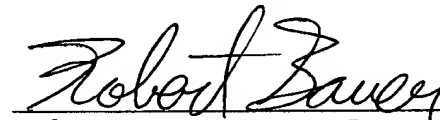
Claims 57 and 58

Newly added claims 57 and 58 are roughly analogous to amended claim 1 and claim 24, respectively, except that they are directed to a handheld telecommunication apparatus rather than an antenna assembly (as in the case of claim 1) or a method of producing an antenna assembly (as in the case of claim 24). Applicants respectfully submit that claims 57 and 58 are allowable for at least the same reasons as claims 1 and 24 stated above.

In addition to the reasons stated above, applicants respectfully submit that claims 57 and 58 are allowable because they require that the planar antenna and the flexible member comprise elements of the handheld telecommunication apparatus. In contrast, the planar antenna and flexible member of Casarez comprise elements of a PCMCIA card, and the PCMCIA card may be inserted and removed from the laptop computer to provide communication capabilities. The planar antenna and flexible member of Casarez do not comprise elements of the laptop computer.

Applicants respectfully submit that no additional claim fees are necessary as a result of this Amendment. As indicated by the filing receipt, applicants paid the claim fees for 5 independent claims and 52 total claims. Upon entry of this amendment, there will be 4 independent claims and 52 total claims pending. However, if any additional fees are due in connection with the filing of this Amendment, including extension of time fees, please charge such fees to the deposit account of Antonelli, Terry, Stout & Kraus Deposit Account No. 01-2135 (367.39057X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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MARKED-UP VERSION SHOWING CHANGES MADE

1. An antenna assembly for a handheld telecommunication apparatus, comprising:

a conductive element defining a planar antenna; and

a flexible member arranged to carry the conductive element and to protrude from a surface of the handheld telecommunication apparatus.

9. An antenna assembly as claimed in claim 1, wherein the assembly further comprises a relatively rigid base portion for connecting the assembly to the handheld telecommunication apparatus.

22. A method ~~as claimed in claim 20~~ of producing an antenna assembly comprising the steps of:

arranging a planar antenna element to be disposed on a substrate; and

encapsulating the planar antenna element within a flexible member ~~wherein the encapsulation is achieved by means of an injection moulding process.~~

23. A method as claimed in claim ~~21~~ 22 wherein the flexible member is produced by moulding operations performed on opposing sides of the substrate.